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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,291	12/06/2001	Kiyoshi Ikehara	Q65012	5099

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SUGHRUE, MION, ZINN, MACPEAK & SEAS  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037

EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/003,291

Applicant(s)

IKEHARA ET AL.

Examiner

Justin R Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-13, drawn to a method of forming a motorcycle tire, classified in class 156, subclass 124.
  - II. Claims 14-20, drawn to a tire having a circumferential belt layer, classified in class 152, subclass 531.
2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can be used to make a materially different product, for example a tire in which a strand bundle construction is required for the steel reinforcing elements of the circumferential belt layer. Also, the process can be used to make a tire in which a tensile force satisfying the relationship of claim 14 is not experienced by the steel cords.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. A telephone call was made to Steven Gruskin on September 17, 2003 to request an oral election to the above restriction requirement, but did not result in an election being made.

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5. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caretta (US 5,562,792) and further in view of Miyawaki (US 5,162,067). It is initially noted as a matter of format that claim 15 should be amended to be dependent from claim 14, not claim 13.

As best depicted in Figure 1, Caretta teaches a motorcycle tire construction comprising a tread portion, a pair of bead portions, a carcass of one or more plies of radial arrangement, and a belt reinforcement structure 5 having at least one circumferential layer formed of steel cords, wherein said steel cords can be of a single twisting structure (single strand formed of between 2 and 10 filaments) (Column 6, Lines 40-50). Furthermore, Caretta teaches that said steel cords are "high elongation" cords and exhibit a stress/strain relationship that is analogous to that required by the claimed invention (Figure 2 and Column 3, Lines 30-37). However, in describing said steel cords, Caretta fails to expressly describe the presence of at least one or more spaces (penetration portions) between filaments over the full length of the cord. In any event, it

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is well known in the tire industry that it is beneficial to have spaces between mutual filaments over the full length of the cord in order to optimize rubber penetration and ultimately improve tire durability. For example, Miyawaki, as compared to Caretta, is directed to an extremely similar high elongation, steel belt cord in which gaps or spaces are maintained between filaments over the full length of the cord to optimize rubber penetration (Column 3, Lines 15-36). It is particularly noted that the spacing of the filaments of the high elongation, steel belt cord of Miyawaki is not affected by the molding/vulcanization forces (tension)- this characteristic allows the rubber to penetrate between filaments upon heating and melting. Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to form the high elongation, steel cord of Caretta with the claimed filament spacing for the benefits detailed above. It is emphasized that Caretta does not provide a negative teaching with respect to the claimed filament spacing but rather is completely silent with respect to this aspect of the high elongation, steel belt cord.

With respect to claims 15 and 16, it is clearly evident that the amount of tensile force and thus the elongation applied to the belt layer varies between cord constructions (depending on the ultimate elongation of the specific cord). Caretta suggests that the elongation at the centerline of the connecting portion can be, for example, as low as 1.5%. Thus, the actual elongation would be lower than this value because Caretta suggests the relevant force can simply be within the connection portion "EF" (Column 7, Lines 50-60). As such, one of ordinary skill in the art at the time of the invention would have recognized that elongation values in the upper region of the claimed regions would

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be existent at the beginning of the connecting portion. Also, with specific respect to claim 15, it is well recognized in the tire industry that the expansion of the tire is greater in the central portion of the belt reinforcement as compared to the shoulder portions of the belt reinforcement due to the differences in their respective inner diameters- this is especially the case in a motorcycle tire in which a high camber is present in the belt region (difference between inner diameters is greater).

Regarding claims 17 and 18, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the connecting portion in Caretta to constitute at least 5%, and furthermore at least 10%, of the elongation at break. Based on the elongation at break, the range has to constitute 0.2% at the minimum and 0.8% at the maximum. It is clearly evident from Figure 2 that the amount of elongation is extremely small in the region outward of the connecting portion (region where cords are needed to be inextensible), wherein a significant amount of the entire elongation is defined by the first portion "OE" and the connecting portion "EF". Thus, the distance "EF" would be expected to constitute at least 5%, and furthermore at least 10%, of the entire elongation at break. It is further noted that such an arrangement is depicted by Figure 2.

With respect to claim 19, Caretta suggests that the relevant ratio is between 0.15 and 0.45, which incorporate the entire range of the claimed invention (Column 5, Lines 37-45).

Regarding claim 20, while the references fail to expressly address the quantitative relationship of the claimed invention, it is evident, in view of Miyawaki, that

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a larger cord diameter is desired as compared to that normally associated with the same cord construction. For example, Miyawaki states that the gaps between respective filaments are at least 20% of the filament diameter (Column 5, Lines 30-35). In this instance, Miyawaki describes the cords constructions as having a major diameter that is greater than the conventional open cord constructions of Figure 19, it being recognized that the conventional open cord construction has a diameter greater than the conventional closed cord construction of Figure 18. Thus, it is evident that the cord of Caretta in view of Miyawaki has a significantly large diameter as compared to the conventional cord constructions and one of ordinary skill in the art at the time of the invention would have expected such a cord to satisfy the quantitative relationship of the claimed invention. It appears that the quantitative relationship is attempting to define a cord diameter that is greater than that associated with a conventional open cord construction.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Imamiya (US 5,223,060) describes a steel, belt reinforcement element having an open cord construction in which the steel filaments are spaced from one another so that it is possible for rubber to flow into the interstices between adjacent filaments (Column 3).

Bourgois (EP 378534) recognizes the use of a steel cord structure in which the steel filaments do not contact each other along their length. Furthermore, the reference

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recognizes that a PLE value is associated with such cords and determines how the cord will behave upon an increase in tension (a greater PLE value results in better rubber penetration).

Hatakeyama (US 4,738,096) teaches a steel cord construction in which a sufficient space is provided between adjacent steel filaments or wires even if a tension force acts upon the wires. This is achieved by varying the performing ratio of the respective steel filaments.

Nawata (JP 01239180) describes a steel cord reinforcing element having an open twisted structure in which sufficient rubber penetration is achieved regardless of the tension applied.

Kumagai (JP 02259176) describes an open-twisted, steel cord construction in which a distance between filaments can be maintained despite the tension applied during calendaring.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397** (if after December 18, 2003, (571) 272-1215). The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.




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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Justin Fischer

November 20, 2003

  
JEFF H. AFTERGUT  
PRIMARY EXAMINER  
GROUP 1300